

Acrolein

Human Health Risk	M
Ecological Risk	
Socioeconomic Risk	M - L

Acrolein is a reactive chemical with a piercing odor that is a by-product of combustion. It is chemically similar to formaldehyde, and has similar effects. It is used in the synthesis of some chemical products, including tear gas, but most of the acrolein in the environment is the result of fossil fuel emissions from industrial and vehicle sources. Acrolein is an irritant, affecting mucous membranes and the eyes. It may also affect respiratory function, particularly in children.

Who's at risk?

Acrolein is a pervasive pollutant with higher concentrations in urban areas. Therefore, urban areas are exposed to increased risk compared with less urbanized areas in the state. Data are currently insufficient to evaluate indoor exposures. Children are more susceptible to infections after exposure and those reporting Multiple Chemical Sensitivities (MCS) may be particularly susceptible to acrolein because of its odor, and the relationship between odor and MCS symptoms.

What are the human health impacts in New Jersey?

Monitoring has shown that exposures in urban areas can be twenty times the Reference Concentration established by EPA. While these levels are still below the concentration at which laboratory (animal) studies have produced observable health effects, there may be thousands of people that will experience the irritant effects of acrolein. In other areas of the state, acrolein may contribute to respiratory irritation resulting from exposure to low levels of multiple respiratory irritants. There are approximately 330,000 children under age three in New Jersey that are potentially at risk for immune system effect; although the risk of such effects is considered low, a subset of these children reside in urban areas.

What are the socioeconomic impacts in New Jersey?

No individual socioeconomic factor poses a large risk in New Jersey, although acrolein contributes to reduced property value and increased medical costs associated with air pollution generally. The total costs for air pollution damage approach one billion dollars in lost property values and several million dollars in medical costs. Acrolein is a small part of the overall air pollution problem.

What's being done?

Acrolein concentrations are reduced as the result of general pollution controls on combustion sources.